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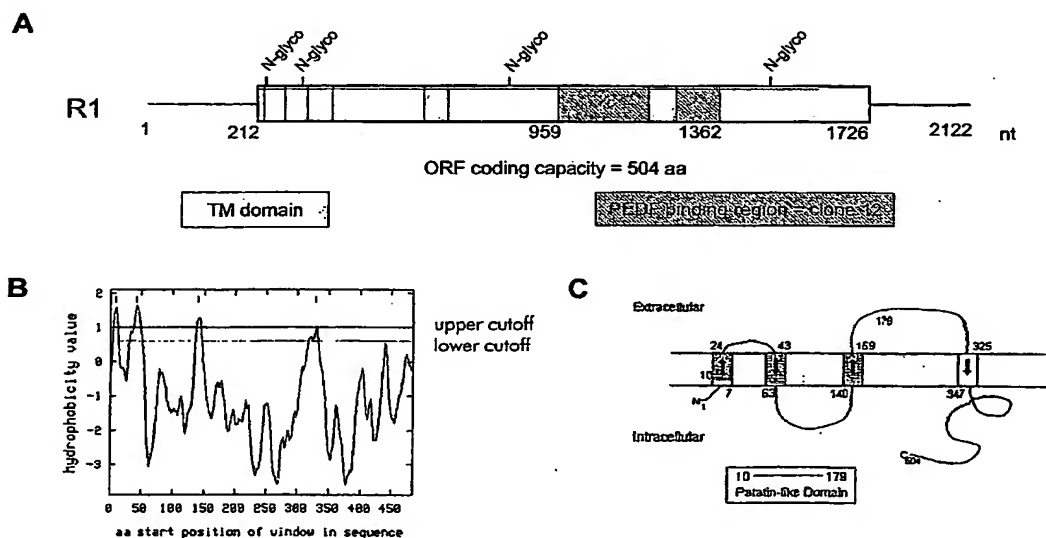
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[Continued on next page]

(54) Title: PEDF-R RECEPTOR AND USES



(57) Abstract: A pigment epithelium derived factor ("PEDF") receptor designated PEDF-R and PEDF-R encoding nucleic acid and amino acid sequences. Wild type PEDF-R, PEDF-R variants, soluble PEDF-R variants, chimeric PEDF-R, and antibodies which bind to the PEDF-R (including agonist and neutralizing antibodies), as well as various uses for these molecules are described. Assay systems for detecting ligands to PEDF-R, systems for studying the physiological role of PEDF-R and its ligands, diagnostic techniques for identifying PEDF-related conditions, therapeutic techniques for the treatment of PEDF-related and PEDF-R related conditions, and methods for identifying molecules homologous to PEDF-R.

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ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,  
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- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

# INTERNATIONAL SEARCH REPORT

Int Application No  
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## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/63 C07K14/705 C07K16/28 G01N33/50 A61K48/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C07K G01N A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, BIOSIS, WPI Data, Sequence Search, EMBASE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 01/07628 A (INCYTE GENOMICS, INC; TANG, Y., TOM; HILLMAN, JENNIFER, L; BANDMAN, OL) 1 February 2001 (2001-02-01) page 4 - page 6; claims 1-28 &amp; DATABASE EMBL 'Online! retrieved from EMBL Database accession no. AX077793 Seq.24 has 99.842% identity to Seq. Id No.1, 77.1% identity to Seq ID. No.12 ,83,4% identity to Seq. 15 Seq. 9 has 100% identity to Seq.3, 82.8% to Seq 13, 100% identity to Seq ID. No. 5</p> <p style="text-align: center;">-/-</p>	<p>1-25, 27-42</p>

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

14 March 2005

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International Application No  
PCT/US2004/025560

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>PATENT ABSTRACTS OF JAPAN vol. 1999, no. 03, 31 March 1999 (1999-03-31) &amp; JP 10 324698 A (TAKEDA CHEM IND LTD), 8 December 1998 (1998-12-08) the whole document &amp; DATABASE EMBL 'Online! retrieved from EMBL Database accession no. AAW86149 sequence of fig. has 96,8% identity to seq. 17</p>	27,29
Y	<p>----- DATABASE BIOSIS 'Online! BIOSCIENCES INFORMATION SERVICE, PHILADELPHIA, PA, US; 2001, BILAK M M ET AL: "Mechanisms for motor neuron protection by pigment epithelium-derived factor (PEDF): Evidence for the presence of PEDF receptor on motor neurons" XP002321073 Database accession no. PREV200100478231 abstract &amp; SOCIETY FOR NEUROSCIENCE ABSTRACTS, vol. 27, no. 1, 2001, page 269, 31ST ANNUAL MEETING OF THE SOCIETY FOR NEUROSCIENCE; SAN DIEGO, CALIFORNIA, USA; NOVEMBER 10-15, 2001 ISSN: 0190-5295</p>	1-63
Y	<p>----- ALBERDI E ET AL: "BINDING OF PIGMENT EPITHELIUM-DERIVED FACTOR (PEDF) TO RETINOBLASTOMA CELLS AND CEREBELLAR GRANULE NEURONS" JOURNAL OF BIOLOGICAL CHEMISTRY, AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, BALTIMORE, MD, US, vol. 274, no. 44, 1999, pages 31605-31612, XP001023972 ISSN: 0021-9258 abstract page 31607, left-hand column, paragraph 2; figure 1</p>	1-63
Y	<p>----- AYMERICH M S ET AL: "Evidence for pigment epithelium-derived factor receptors in the neural retina." INVESTIGATIVE OPHTHALMOLOGY &amp; VISUAL SCIENCE. DEC 2001, vol. 42, no. 13, December 2001 (2001-12), pages 3287-3293, XP008044310 ISSN: 0146-0404 the whole document</p>	1-63

# INTERNATIONAL SEARCH REPORT

international application No.  
PCT/US2004/025560

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 55-63  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0107628	A	01-02-2001	AU 6364700 A	13-02-2001
			CA 2380317 A1	01-02-2001
			EP 1200596 A2	02-05-2002
			EP 1477564 A2	17-11-2004
			JP 2003533967 T	18-11-2003
			WO 0107628 A2	01-02-2001
<hr/>				
JP 10324698	A	08-12-1998	NONE	
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